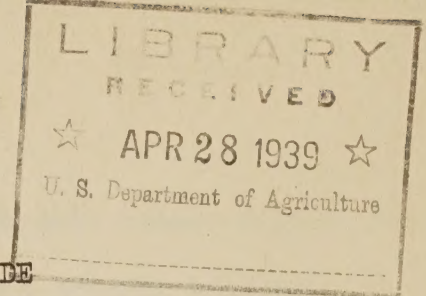


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SAFETY ON THE FARM IS MOSTLY HOME MADE

An address by S. H. McCrory, Chief, Bureau of Agricultural Engineering, U. S. Department of Agriculture, before the Fourth Annual Northwest Accident Conference, St. Paul, Minn., at 2 p.m., C.S.T., Tuesday, April 11, 1939

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It is remarkable that men think safety so desirable they will go out and fight for it as a group with highly efficient weapons while at the same time so many individuals will not organize their affairs or their work to get rid of daily hazards. Some of this common recklessness probably is the result of laziness and ignorance, but perhaps much more comes of a lack of discipline, a disregard of that order which a wise poet has said is "Heaven's first law".

Here, I believe, is a center about which we should concentrate a great deal of our thought and effort for greater safety in our workaday lives in homes, shops, offices, factories, barns, fields, and automobiles. The places where we live and work must be in order and we ourselves must be in order and observe regulations and recommendations.

Because of the nature of my work, agricultural engineering, I am particularly interested in safety on the farm, but the fundamentals of human safety apply everywhere. So I feel it is in order to emphasize some of those things that lend conviction to the advice of safety engineers, physicians, food and drug officials, religious leaders, military men, traffic directors, or of people who take part in such meetings as this Northwest Accident Conference. Any of these people, it seems, know the importance of order as a safety factor. They know that order in the movements of the planets makes it possible to order our lives by days, months,





seasons, and years and to look forward to what we might call cosmic safety; that moral order tends to make society sound and decent; that orderly knowledge of foods and drugs is a valuable asset; that observance of order is the essence of traffic safety; that order in the home and in the factory -- good housekeeping -- prevents all sorts of accidents; and that order and care, which is often much the same thing, are great factors in safety on the farm.

I am convinced that if there were in the country more of that self discipline which results in better order of houses and other buildings, equipment and activities, there would be a much greater increase in safety. Not that country people are more careless than those in towns and cities. I don't believe they are, in spite of the fact that it is generally agreed more people are killed accidentally in agricultural activities than in any other pursuit. There are several reasons for this, but they are not reasons why we should submit to these hazards as of the kind that cannot be met.

In the first place, farm families are largely operating on their own responsibility. Nobody is around watching them while they do their work or while they sleep as is the case in cities where there are all kinds of safety precautions carried out on a State or local basis or in offices, factories, and homes. So far, the law does little enforcing of safety on the farm, although there is likely to be a stronger trend in that direction. With the rapid spread of rural electrification, we are going to see the need of legal controls of the way this new power is handled.

But, to continue with the peculiar hazards of the farmer and his family. As I say, they are on their own, not in a compact group. Even on the farm much of the work is done by individuals at some distance from others, so in case of accident help is not immediately at hand.





Another peculiarity is that there are frequent changes of work from season to season, from week to week, from day to day, and even during a single day. In this there may be the advantage of rest from change as well as the disadvantage of less thorough acquaintance with equipment and less accuracy of movement. Also with a variety of equipment there are more things to watch and keep in good order, more chances of neglect of repairs and replacements.

Since there are no factory regulations on the farm, at least on most farms, there is a tendency to be irregular, to work late in the fields at rush seasons and to do the chores in a hurry after dark, often without proper lighting. Many men push themselves at such seasons and do not get enough rest and sleep, a serious hazard in these days of power machines and electricity. In spite of improvements, farm machines are a top hazard in farm work. At the same time, the old hazards of animals, unruly bulls and kicking horses, is second on the list. The farmer must be his own inspector and advisor -- he must provide his own brakes to regulate his habits.

On the farm young children are often permitted to handle all sorts of equipment and machines, both power and horse-drawn. In many States they operate automobiles at an age below that usually considered safe. Parents who permit this are certainly following a bad practice even if they are within their rights.

There are other peculiarities of the farmer's situation as to safety. I don't suppose I have thought of all of them. Because of the inconvenience of getting expert assistance immediately, there is a tendency on the farm to do much makeshift repairing. I must say that many farmers might be called expert at this and I would not be so foolish as to say they should quit being handy men. They have to be for the sake of economy in money and time and sometimes







for their own individual satisfaction, but there should be a limit to it, particularly in the cases of electrical equipment and power machines. To anyone who thinks there shouldn't be a limit I should like to cite as an example the farmer who hooked up a grindstone to an engine with so large a pulley that the speed of the stone caused it to "explode" and kill him. You can find a great variety of examples, many of them the result of home jobs of electric wiring, and recently, making controllers for electric fences.

Weather is still another thing that singles out the farmer for special damage. Lightning causes great loss of life and property. Excessive heat, windstorms and exposure are other causes. There is something very interesting about the trend of heat prostrations or sunstroke among farmers. I am told farmers are more susceptible to it than they once were and that the reason is they do not depend so much on the home-cured product for their meat supply. Home-cured meat was usually <sup>very</sup> salty and the better supply of salt in the bodies of those eating it prevented the deficiency of salt in the blood that is the direct cause of the prostration. To keep the body in good order when work causes much perspiration, extra salt must be taken. Salt tablets are now put up in special sweat-proof packages to be carried in the pocket.

In the country now, fatal highway accidents are more frequent than on city streets. Everyone should observe horse-sense rules of the road, but there are some things farmers can do to mitigate their own peculiar habits. The old-time entrance gate straight in line with the fence is a dangerous thing, particularly along smooth, much-traveled highways. Such a gate causes the farmer to stop his automobile, wagon or machine at least partly in the line of traffic while he gets out to open it. Present traffic conditions on thousands of miles of highways demand that these gates be set back a considerable distance and





that the approach be wide enough so it is not necessary to swing out to the opposite side of the road to get wide or long machines through the opening. A properly ordered farm will not only have such entrances to the farmstead and to fields abutting on the highway, but will have them located as safely as possible in relation to hilltops and curves in the road. There are also other ways of adding to the safety from traffic danger, such as gates that may be opened from the seat of the car or machine, gates opened by a push of car or tractor, or open ways equipped with animal guards, the livestock being moved through a nearby gate.

I do not want to overpower you with statistical evidence of the lack of safety on the farm and with details of the great variety of hazards that luck round all the activities in the house, barns, fields, and woodlots. These things have been demonstrated frequently and highly effective groups such as the National Safety Council, the American Red Cross, industrial associations, and State and Federal organizations are everlastingly at the job of keeping information up-to-date and spreading it in places where there is a probability it will produce good results.

This information, the various campaigns for safety, and the impetus given by such conferences as this one we are having here have produced good results. According to the National Safety Council, since 1913, except for two years, the number of accidental deaths per 100,000 population has decreased each year. Non-traffic accidental deaths in 1937 were lower by 37 percent than in 1913. Even motor vehicle deaths since 1925 have decreased 17 percent, figured on the basis of mileage traveled by motor cars.





The Kansas State Board of Health recently reported that in 1938 deaths from accidents during agricultural work were much less than in any previous year. In fact they were only a little more than half the average of the previous eight years. Accidents with machinery and animals as the agents were responsible for more than half these deaths.

These reports should add impetus to efforts to increase safety. They indicate the efforts are in the right direction and should bring in more support and more ideas, more stimulating conferences like this one to focus regional attention on the hazards that require special attention. Rural schools might make a very effective contribution to accident prevention<sup>on</sup> the farm and in the farm home by training the children in how to prevent accidents. Similar instruction might be given farm folks through the State Agricultural Extension Service.

As another example of the trend toward safety, I think I should call attention to the fact that the Department of Agriculture has a special section devoted to the study of employee safety which was established in July, 1937. In the last six months of the year accidental deaths in all the Department forces numbered 84, but in the comparable period<sup>in 1938</sup> they were down to 60, in spite of an increase in personnel. The decrease is attributed to the greater attention now given to safe practices to improved equipment and more thought for safety.

This Department office is always on the lookout for new means of guarding against accidents and against the usual consequences of accidents, and for means of promoting health of employees. There is a close enough relationship between the jobs of many of these workers and those of farm workers to make it worth while to name a few of the things recently on display in this office.





There was a first-aid kit for treatment of burns that is being sent out for trial by the Forest Service and CCC camps. It has material for making tannic acid solution and tubes of tannic acid paste to treat several cases of bad burns, and 12 units of ordinary first-aid items for cuts, bruises and other wounds. Many people still think that burns should be greased, but tannic acid, so the safety men say, is effective in coagulating the albumen in the burned flesh so it will not be absorbed into the blood stream. With this treatment, they say, a man with 60 percent of his skin area burned has a better chance for recovery than a man with 40 percent burned treated in the old way with greasy preparations.

There was a portable four-gallon sanitary drinking fountain that can be pumped up like a garden sprayer and does away with cups. There were salt tablets put up in tin boxes and in moisture-proof membrane, the kind I mentioned before as a safety precaution against sunstroke. There was a light-weight, hard helmet made of fiber impregnated with some plastic material possibly made from soybean meal. It is designed for protection on jobs where men may be hit on the head with falling branches, rocks or other heavy materials. Then there was a safety vessel for carrying and storing gasoline and other volatile fuels. It is equipped with a flexible metal spout with an automatic closing valve and the intake cap also closes automatically. More use should be made of such equipment for people are handling gasoline almost as if it were water, forgetting that weight for weight it has more energy than ordinary dynamite.

These things that are proof against forgetting are needed in wide variety to reduce many kinds of hazards.

I mention some of this equipment partly because I want to bear down on the point that order -- preparation and plan -- is desirable, that it is considered essential where men have the safety of other men as their responsibility. It is as plain as a mashed thumb that the individual ought to follow the same course





with even a little more interest since usually it is his own skin that is likely to be damaged or that of some member of his family.

Accidents on the farm are of seeming endless variety. It is not feasible to adopt special precautions against all possible hazards, but it is possible to adopt sound practices and to install relatively safe equipment. Above all, we can be sure that the principle of good order will build a pretty secure wall against a large percentage of hazards.

Since farm people are so dependent upon themselves for protection and for help in case of accidents, a full realization of this fact is a good beginning in acquiring greater safety. It is the basis for meeting the problem in an orderly manner, the starting point for that "self inspection" which frequently has been emphasized as of such importance, especially in the country. Good safety habits are likely to grow out of this point of view and children will be taught to take care of themselves and to take care in general. On the farm, because of close association with machinery and animals and the work of the fields and barns, they have a tendency to want to grow up too fast. As the records show, machines and animals are dangerous even to grownups and should not be put in hands that are still too small.

Planning the locations of buildings can contribute much to safety, particularly because of the fire hazard. A farmhouse too near the barns faces an extra danger because fire, if it comes, may jump the gap, and it may go the other way too. When putting up buildings for animals, feed storage, machinery and shop, it is not always good practice to have them all together. Good order demands consideration for the fire hazard as well as for economy and convenience.

Records by mutual insurance companies of farm fire losses in parts of New England where houses are connected with other farm buildings show that losses for \$1,000 of insurance were twice the average on farms for the whole country.



The house itself, which in the country does not come under the eye of an official inspector, should not be built, remodeled or repaired without the owner remembering that most farmhouse fires are the result of defective chimneys, sparks on roofs, or poorly installed heating equipment. Most barn fires start from spontaneous combustion or lightning. Proper materials and equipment, good planning and practices reduce these hazards to a minimum.

But the matter of accident prevention in buildings is a book in itself, containing chapters on arrangement, materials, wiring, heating, stairways, lighting and what not. Rather than go into these factors I prefer to go on to some of those things that perhaps are not so generally discussed.

Machinery, the greatest of the agents in accidental deaths and injuries in farm activities, grows more and more important to the farmer from year to year. And the rapid extension of high-line electricity will bring in more of a relatively new type of farm machines and equipment. Here in the machinery field the protection that comes through good order may be of even greater importance than elsewhere on the farm because of the element of power -- animal, gasoline or electricity.

According to the Kansas records, in that State, which may be a pretty good guide as to what is occurring in a great many other States, the machines involved in farm work deaths in the order of number of fatalities caused are: tractor, circular saw, combine, disc, corn binder, plow, corn cutter, steam engine and hay rack. I haven't seen the details as to what were the real causes of these accidents. We know that machines are not the real cause of accidents, that carelessness causes most of them. So we can be pretty sure as to what needs to be done. We know we can do something to reduce carelessness, or circumvent the effects of carelessness, by preliminary care.





Machinery manufacturers have become very much alive to the accident situation, and more and more machines are being equipped with safeguards, but they can not build brains into them, though they might some day use the electric eye. Self starters are now common, there are safety levers on silage cutters, some power take-off shafts are made so they are less likely to grab a dangling piece of a man's clothing, safer ways have been found for connecting tractors to machines and wagons.

But machines are made to go and some of them to receive material to be worked. Only the operator himself can keep his hands out of the buzzing saw or the revolving snapping rolls of a corn picker, even if the maker has taken all precautions to keep the danger to a minimum. Farmers should insist upon safety devices wherever it is possible to get them, but the wise ones will never forget that in most cases they hold the switch of safety in their own hands. Those who follow the safety rule of keeping themselves and equipment in good order will practice it so it becomes a habit.

Farmers have long used the expression "keeping the machine in good order." In this day of growing power farming it is more significant than ever before. A machine in good order is a safer machine, but if it is a particularly dangerous machine from the nature of its work, it is not in good order unless it has the best safety equipment available. Machines that are still good but not up-to-date may often have safety equipment put on them.

Far too often accidents with machinery are the result of the operator's own personal equipment, his clothing. A dangling boot lace, a loose sleeve, a flapping coat are out of order when near pulleys, snapping rollers, power take-offs and such things. Sometimes a man's life literally hangs by a thread that is dangerous because it doesn't break.





Even though farm machines are such great time savers, it has been demonstrated that accidents are too often the result of a desire to save a little more time. Many of them happen because of attempts to relieve clogging without shutting off power or because of hopping off a tractor while the power-takeoff shaft is spinning. Such habits are as much out of order as the one of leading out the bull without using a staff. If in addition to this common practice the man happens to have had too little sleep the night before, the hazard is increased. Another practice closely related is that of refueling gas engines and tractors while they are still running, a procedure that is bad even with a safety fuel can.

Let us consider that in spite of the fact that in this region and in some other large areas of the country farmers are accustomed to the use of power and a great variety of implements, they use the different ones for only short periods. So it is probable that operators of farm machinery need to be just a little more deliberate than those who run but one machine for a long time.

Electricity for power is giving many thousands of farmers a new tool to work with, some new things to keep in order and some more facts to keep in mind. Although electricity is one of the safest forms of power used on the farm, its misuse points the offender immediately toward trouble. It is by all odds the fastest thing on the farm. Fires and shock are the principal hazards to look out for. Although wiring is blamed for many fires that can not otherwise be explained, it does cause some of them as a result usually of such disorders as overloading the circuit, defective materials, poor insulation, improper installation and misuse of equipment. Homemade electrical equipment is especially bad, even though there are now a good many farm men, and boys too, who have considerable practical knowledge of electricity. But the farmer who wants to be sure he is on the safe side will seek advice from power companies and the help of men thoroughly trained in this work.





Fortunately, when electricity becomes available for power use on the farm, plenty of information on hazards is available along with it. Supplying current is, of necessity, a thoroughly organized business, so it is easy to have order in its use. Because of this fact and because electric current makes work more convenient and gives readily available light, it may be a big factor in increasing safety on the farm.

There are plenty of facts now which if observed would bring about great reduction in accidents to farm workers, but, at the risk of making the repetition tiresome, I am going to say again that good order is the best fundamental rule and to emphasize it still more I will tell a story:

"Tama Jim" Wilson who was Secretary of Agriculture for 16 years, ending in 1913, liked to tell how when he was Speaker of the Iowa Legislature he once restored order when that body became unruly. He may have exaggerated, but it is his story. "I first used my gavel," he said, "but I pounded so hard I broke it up. Then I picked up my chair and pounded the desk until the chair was broken up. Then I picked up an arm of the chair and used that until it was broken up. And then in turn I picked up other parts of that chair until it was nearly all used up. But, gentlemen, I had order."



